

CLAIMS

What is claimed is:

1. An acoustic composite construction comprising:
  - a low density core material having a first side and a second side;
  - a first sheet of rigid face material bonded to the first side with a visco elastic adhesive; and
  - a second sheet of rigid face material bonded to the second side with a visco elastic adhesive.
2. The acoustic composite construction of claim 1 wherein the first sheet and the second sheet each comprise resin impregnated fiber.
3. The acoustic composite construction of claim 2 wherein the first sheet and the second sheet each comprise a plurality of layers of resin impregnated fiber mat.
4. The acoustic composite construction of claim 2 wherein the resin impregnated fiber comprises graphite epoxy.
5. The acoustic composite construction of claim 1 wherein the low density core material comprises HT50 from the Divinylcell Corporation.
6. The acoustic composite construction of claim 1 wherein the low density core material comprises a material having a thickness of about one quarter wavelength of a dominant frequency to which the acoustic composite construction may be exposed.

7. The acoustic composite construction of claim 6 wherein the low density core material comprises a material having a thickness of about 15-16 cm.
8. The acoustic composite construction of claim 1 wherein the visco elastic adhesive comprises V112 from the 3M Corporation.
9. An acoustically damped launch vehicle fairing comprising:
  - a low density core material having a first side and a second side;
  - a first rigid face sheet;
  - a second rigid face sheet; and
  - a bonding material bonding the first rigid face sheet to the first side and bonding the second rigid face sheet to the second side, the bonding material selected to allow the first rigid face sheet to move relative to the second rigid face sheet.
10. The acoustically damped launch vehicle fairing of claim 9 wherein the low density core material comprises a low density core material having a thickness equal to a quarter wavelength of a dominant acoustic frequency to which the fairing will be subjected.
11. The acoustically damped launch vehicle fairing of claim 10 wherein the low density core material comprises HT50 from the Divinylcell Corporation.
12. The acoustically damped launch vehicle fairing of claim 9 wherein the first rigid face sheet comprises a resin impregnated fiber mat.

13. The acoustically damped launch vehicle fairing of claim 12 wherein the first rigid face sheet comprises graphite epoxy.

14. An acoustically damped launch vehicle fairing comprising:

a low density core material having a thickness approximately equal to a quarter wave length of a dominant acoustic frequency to which the fairing will be subjected;

a first rigid face sheet comprising a plurality of layers of resin impregnated fiber mat;

a visco elastic material bonding the first rigid face sheet to a first side of the low density core material;

a second rigid face sheet comprising a plurality of layers of resin impregnated fiber mat; and

a visco elastic material bonding the second rigid face sheet to a second side of the low density core material.

15. The acoustically damped launch vehicle fairing of claim 14 wherein the low density core material comprises HT50 from the Divinylcell Corporation.

16. The acoustically damped launch vehicle fairing of claim 14 wherein the resin impregnated fiber mat comprises a graphite epoxy.

17. The acoustically damped launch vehicle fairing of claim 14 wherein the visco elastic material comprises V112 from the 3M Corporation.